

to be kept "au courant," since "Science" is the active agent, will find this journal invaluable. Having dipped thus far into the prospectus, we turned from the field of superlatives into the list of contributors. These are superlative, their names being a sufficient guaranty of the undertaking. In Vol. 1, No. 1, we have articles by Prof. E. S. Holden, Prof. Burt G. Wilder, Francis P. Upton, and others, together with a mass of well selected extracts. After a close examination of its contents, however, we find not to exceed three notes bearing upon botanical subjects. Such being the case we cheerfully advise all to subscribe for it, addressing John Michels, editor, box 3838, New York, and enclosing \$4 the "*sine qua non*."

THE MONTHLY INDEX to Current Periodical Literature, Proceedings of Learned Societies and Government Publications. Published at office of American Bookseller, 10 Spruce Street, N. Y., at \$1 per annum. Under the above somewhat extended title, we have the *vade mecum* of the specialist, since it gives the titles of the latest articles written in almost every department of Natural History, Philosophy, Biography, Education, Religion, Art, Æsthetics, Architecture, Music, Archæology, Anthropology, Ethnology, Folk-lore, etc., etc., with the name of author and number of pages. Without claiming to "meet a long felt want" it does it admirably. Address as above.

NECTAR, ITS NATURE, OCCURRENCE AND USES. By Wm. Trelease, Ithaca, N. Y. We have received the author's edition of the above pamphlet, and hope in our next issue to make a full review. It is extracted from the report on cotton insects by J. Henry Comstock, Entomologist to the U. S. Department of Agriculture. The extract is 25 pages with a full page steel plate containing 13 figures.

RUDIMENTARY COMA IN *GODETIA*.—While investigating the development of the embryo-sac in the different genera of *Onagraceæ*, my attention was attracted to certain hair-like projections which appeared upon the forming ovule of *Godetia*, probably *G. grandiflora*. A careful examination showed them to be identical in structure with the forming hairs in the coma of *Epilobium*. They occurred almost exclusively at the chalazal end, one or two scattered ones being detected farther down upon the raphe. A study of the development of the coma of *Epilobium* shows that the first indication of it is a tuberculated appearance at the chalazal end. Presently these tubercles push out into elongating nucleated cells which eventually develop into the long hairs of the coma. Now *Godetia* permanently retains this tuberculated margin at the upper end, but does not usually develop its coma any farther. In the cases examined, however, the forming ovules, either in reminiscence or prophecy, stretched out their tubercles into incipient hairs. Tracing these ovules in their subsequent development it was found that these hairs gradually disappeared until when the ovules had become anatropous, there was no indication of them. As *Godetia*

has been merged into *Enothera*, many species of the latter were examined to see if any such thing occurred in them, but no trace of such growth was detected. This would seem to indicate that if *Godetia* is not entitled to generic rank, it is at least that part of *Enothera* which looks towards *Epilobium*.

A discrepancy must be noted here, however. In *Epilobium* the hairs of the coma do not begin to form until the ovule has become completely anatropous. But in the *Godetia* observed the incipient coma had all disappeared by the time the ovule had become anatropous, beginning to form before the nucleus is half covered by the coats. These hairs appeared in greatest size and abundance when the axis of the ovule was at right angles to its anatropous position.—J. M. C.

BOTANY FOR HIGH SCHOOLS AND COLLEGES, by Charles E. Bessey, M. Sc, Ph. D; Henry Holt and Co., New York, 1880—The question may naturally arise in the minds of many teachers, what need is there of another botany? We have Gray's, Wood's, Younman's, etc., almost every publishing house being represented by a botany; surely it is but publishers' rivalry that is throwing this new book upon the market. Even a casual glance will show, however, that we have here no stereotyped repetition of books that have gone before, but a new departure in American botanical text books. The time has long past when the study of any of our botanical text books will be sufficient to impart even a general knowledge of the science of botany. Once the study of a little morphology, the learning of a few terms in the glossary, and the analysis of a few flowers was thought to be all the profitable study that botany could furnish students. But this state of things has entirely changed and plants are getting to be recognized as living organisms that have life histories, and that have digestion, nutrition, assimilation, circulation, respiration, reproduction and other functions just as remarkably performed as in animals. The question then arises, is it more profitable to study the plant in its life work, or simply to dissect and name its parts and their probable function. It is evident that we can study plant physiology as well as anatomy, and it is this very thing that has been so long neglected in our schools, neglected from lack of suitable text books. Our great botanists have been systematists, as is perfectly natural in a country just developing its flora, hence all botanical work in the schools has followed the same bent. Such work is not to be decried, for it is absolutely necessary and well enough as far as it goes, but it is not all of botany. To our country belong some of the finest works on morphology and classification published and they rank as the very highest authorities, but our physiology remains yet to be written. Prof. Goodale has for several years had such a work in contemplation, but its publication has been delayed, and now Prof. Bessey is the first to occupy this new field.

His book is divided into two parts. Part I is upon the subject of General Anatomy and Physiology. Part II treats of Special Anatomy and Physiology. To give our readers a general idea of